

(12) UK Patent Application (19) GB (11) 2 386 604 (13) A

(43) Date of A Publication 24.09.2003

(21) Application No 0305953.2

(22) Date of Filing 17.03.2003

(30) Priority Data

(31) 0206333

(32) 18.03.2002

(33) GB

(51) INT CL⁷

A61K 7/50 // C11D 3/00

(52) UK CL (Edition V)

C5D DDX D107 D120 D122 D123 D124 D141 D170 D176
D182 D184

(71) Applicant(s)

PZ Cussons (International) Limited
(Incorporated in the United Kingdom)
PZ Cussons House, Bird Hall Lane,
STOCKPORT, Cheshire, SK3 0XN,
United Kingdom

(56) Documents Cited

EP 1133983 A1

EP 0745665 A2

WO 2001/000765 A1

FR 002738148 A

US 6583103 A

US 6177092 A

US 5804546 A

(72) Inventor(s)

Craig Joseph Davies
Jason Ronald Fullman
Helen Patricia Atkinson
Emma Pawson

(58) Field of Search

UK CL (Edition V) C5D

INT CL⁷ A61K, C11D

Other: Online: WPI EPODOC JAPIO

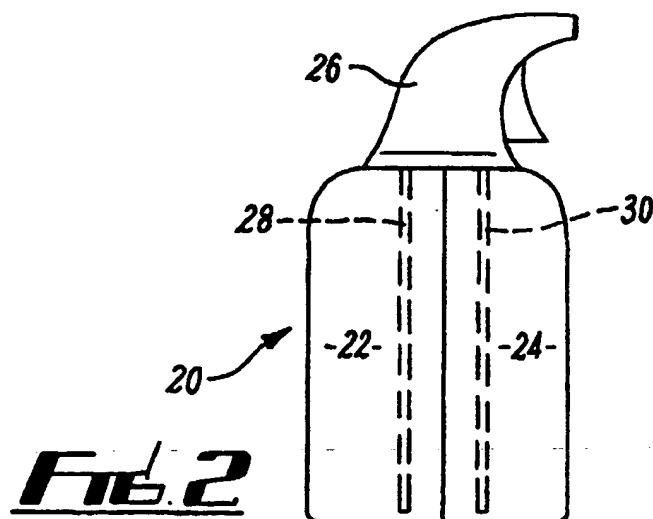
(74) Agent and/or Address for Service

Wilson Gunn M'Caw
41-51 Royal Exchange, Cross Street,
MANCHESTER, M2 7BD, United Kingdom

(54) Abstract Title

Personal cleansing composition

(57) A packaged cleaning composition comprising a surfactant, an aqueous acid component and an aqueous alkaline component, the acid and alkali components being provided in separate compartments within the package. On dispensing from the package the acid and alkali react together creating carbon dioxide gas which acts upon the surfactant to create a lather. The acid component is buffered to a pH ranging from 2 to 6.5 to reduce the possibility of irritation of the skin.



BEST AVAILABLE COPY

GB 2 386 604 /

1/1

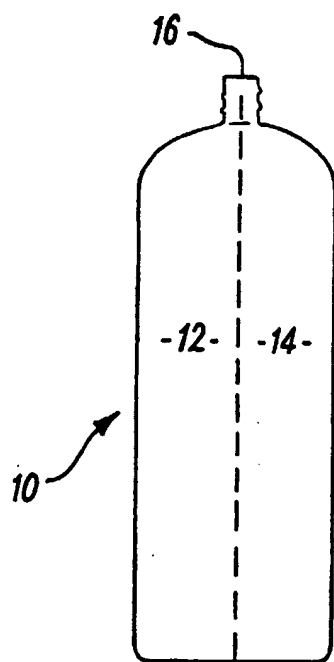


FIG. 1

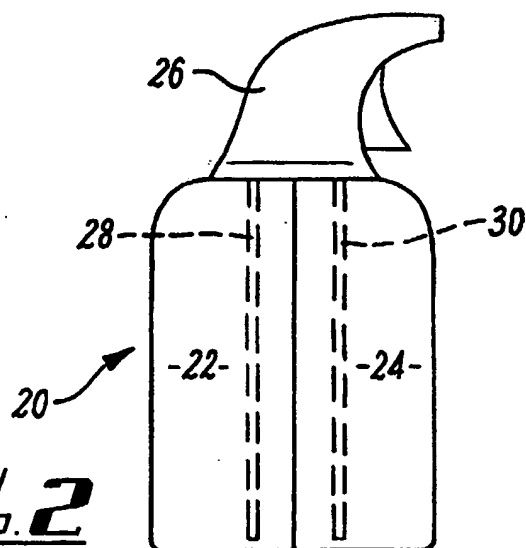


FIG. 2

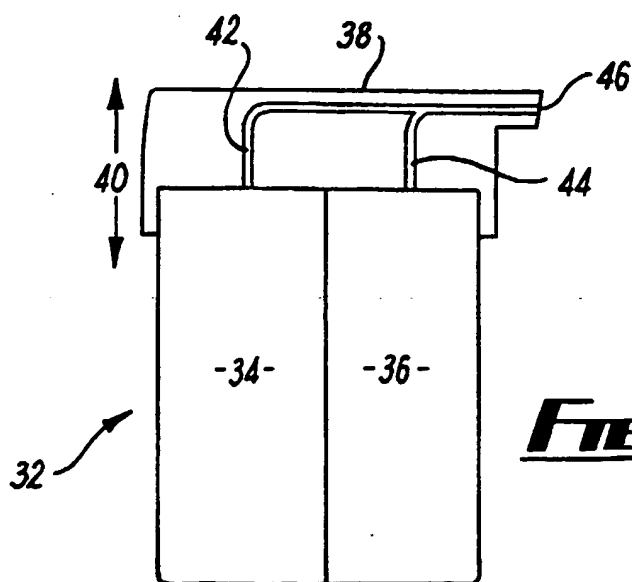


FIG. 3

PERSONAL CLEANING COMPOSITION

This invention relates to a cleaning composition and more particularly, but not exclusively to a personal cleaning composition, that produces an instantaneous lather on exit from its packaging.

5 It is of course known that instantaneous lather can be obtained from cleaning compositions stored in aerosol containers. The release of such compositions from an aerosol together with a propellant creates foam ready for immediate use. However, aerosol-based compositions are expensive and furthermore carry the risk that the propellant gas is flammable.

10 EP 0745665A discloses an instantly foaming system without the use of an aerosol container. Here a two-phase aqueous system is employed whereby, when the two phases are combined together, a gas is generated which acts upon the surfactant in the system to produce lather. Typically, the reactive component in one phase is citric acid and in the other is sodium bicarbonate. As the acidic
15 phase employed in this prior art system is of low pH, if dispensed separately or in excess, it is likely to cause irritation when in contact with the skin. This restricts the potential end use of this technology, making it less suitable for facial washing and for use on sensitive skin.

The present invention has been made from a consideration of this problem.

20 According to the present invention there is provided a cleaning composition provided in a package, wherein the cleaning composition comprises at least one surfactant, a first aqueous acidic component and a second aqueous alkaline component, the first and second components being located in separate compartments within the package prior to being dispensed therefrom, whereby

when the first and second components are combined together before or after dispensing, carbon dioxide gas is generated which acts on said surfactant to create a lather, characterised in that the first acidic component further comprises a buffer such that the pH of the first component is in the range from 2 to 6.5.

5 The use of the buffering system in the acid phase limits the potential for skin irritation by bringing the pH of the first component from 1 to 9 up to 2 to 6.5. The pH of the first component is preferably buffered in the range from 3 to 6 and ideally in the range from 4 to 5. This pH is much more acceptable for the skin and is in line with the normal acid mantle of the skin.

10 The first component preferably, but not exclusively, comprises an alpha hydroxy acid in combination with a salt thereof. Most preferred is citric acid in combination with a citrate, preferably sodium citrate. Other suitable acids include mineral and/or organic acids such as malic acid, fumaric acid, succinic acid and tartaric acid. The second component comprises a carbonate or bicarbonate.

15 Although sodium carbonate or sodium bicarbonate may be used; ideally the second component comprises potassium bicarbonate. Potassium bicarbonate is over twice as soluble as sodium bicarbonate. This allows much higher levels to be used and therefore allows a much higher amount of gas to be generated which means that foam is generated in higher quantities and can be of higher viscosity.

20 As a key consumer driver for products of this type is the amount and speed of lather production the use of potassium bicarbonate yields significant advantages. These acid and basic components not only combine to generate carbon dioxide but they may also contribute to the buffering of the composition.

The acid shall constitute from 1% to 20% by weight of the first component.

The carbonate or bicarbonate shall preferably constitute from 1% to 25% by weight of the second component.

- 5 The surfactant or surfactants can be included with one or other component or may be kept separate and combined with the mixture of the two components when they are dispensed. The term surfactant as used herein could include soap.

The surfactant system chosen for this system may comprise, alone or in combination, any non-ionic, amphoteric, anionic, or cationic surfactant.

- 10 It is a preferred feature of this invention that the surfactant comprises any of the following either alone or in combination:- alkyl polyglucoside (APG) (non-ionic) and cocamidopropyl betaine (amphoteric). Any non-ionic or amphoteric surfactants, alone or in combination, would be preferred, but alkyl polyglucosides are noted for their exceptionally high foaming performance. Other examples of
- 15 amphoteric surfactants which could be used include amphoacetates (e.g. cocoamphoacetate) and amphopropionates (e.g. sodium cocoamphopropionate). Other examples of non-ionic surfactants which could be used include fatty alcohol ethoxylates (e.g. laureth-4), fatty acid alkanolamides (e.g. cocamide DEA) and amine oxides (e.g. alkyl dimethyl amine oxide). This list is not exhaustive and
- 20 does not preclude the use of other amphoteric and non-ionic surfactants nor does it preclude the use of anionic and cationic surfactants.

The surfactant shall preferably constitute from 1% to 30% by weight of the total composition and more preferably from 5% to 20% by weight of the total composition.

That said the amount of surfactant is chosen having regard to the intended purpose of the cleaning composition. Where the composition is intended to be a shower gel it shall preferably comprise from 2.5% to 30% by weight of at least one surfactant.

5 Where the composition is intended to be a shaving cream it shall preferably comprise from 2.5% to 30% by weight of at least one surfactant.

Where the composition is intended to be a fabric cleaner it shall preferably comprise from 2.5% to 40% by weight of at least one surfactant.

10 The composition of the invention may include other additives which are usually included in cleaning compositions, for example any of the following either alone or in combination:- colourants, preservatives, anti-bacterial agents, skin conditioning agents, thickeners, fragrance and the like. These additional ingredients may be included with one or other component as may be found appropriate.

15 The invention is not restricted to the specific embodiments just described, nor is it restricted to facial cleaners or shower gels. Compositions according to the invention may be used for other cleaning uses including shaving creams, hand washes, fabric cleaners and hard surface cleaners.

The invention is further illustrated by the following examples

20 EXAMPLES

Example 1

Two components of a light foaming facial cleanser were formulated as follows:-

Component A

INGREDIENTS	% w/w
Deionised Water	to 100%
Citric Acid Monohydrate	7.0%
Trisodium Citrate	16.5%
Decyl Glucoside	2.5%
Cocamidopropyl Betaine	2.5%
Preservative	q.s.
Colour	q.s.
Fragrance	q.s.

Component B

INGREDIENTS	% w/w
Deionised Water	to 100%
Potassium Bicarbonate	20.0%
Decyl Glucoside	2.5%
Cocamidopropyl Betaine	2.5%
Preservative	q.s.
Colour	q.s.
Fragrance	q.s.

5 Example 2

Two components of an instant lathering shower gel were formulated as follows:-

Component A

INGREDIENTS	% w/w
Deionised Water	to 100%
Citric Acid Monohydrate	7.0%
Trisodium Citrate	16.0%
Lauryl Glucoside	10.0%
Cocamidopropyl Betaine	10.0%
Preservative	q.s.
Colour	q.s.
Fragrance	q.s.

Component B

INGREDIENTS	% w/w
Deionised Water	to 100%
Potassium Bicarbonate	20.0%
Lauryl Glucoside	10.0%
Cocamidopropyl Betaine	10.0%
Preservative	q.s.
Colour	q.s.
Fragrance	q.s.

Example 3**Component A**

INGREDIENTS	% w/w
Deionised Water	to 100%
Cocamidopropyl Betaine	15.0%
Citric Acid Monohydrate	7.0%
Trisodium Citrate	16.8%
Solubiliser	1.00%
Fragrance	q.s.
Colour	q.s.
Preservative	q.s.

5 Component B

INGREDIENTS	% w/w
Deionised Water	to 100%
Decyl Glucoside	15.0%
Potassium Bicarbonate	15.0%
Solubiliser	1.0%
Preservative	q.s.
Fragrance	q.s.
Colour	q.s.

Example 4**Component A**

INGREDIENTS	% w/w
Deionised Water	to 100%
Cocamidopropyl Betaine	15%
Citric Acid Monohydrate	7.0%
Trisodium Citrate	17.0%
Solubiliser	1.0%
Preservative	q.s.
Fragrance	q.s.
Thickner	q.s.
Colour	q.s.

5

Component B

INGREDIENTS	% w/w
Deionised Water	to 100%
Decyl Glucoside	15%
Potassium Bicarbonate	15.00%
Solubiliser	1.00%
Preservative	q.s.
Fragrance	q.s.
Thickener	q.s.
Colour	q.s.

Example 5**Component A**

INGREDIENTS	% w/w
Deionised Water	to 100%
Sodium Laureth Sulfate	10.0%
Cocamidopropyl Betaine	2.5%
Citric Acid Monohydrate	7.0%
Trisodium Citrate	17.0%
Solubiliser	1.0%
Preservative	q.s.
Fragrance	q.s.
Thickner	q.s.
Colour	q.s.

5 Component B

INGREDIENTS	% w/w
Deionised Water	to 100%
Decyl Glucoside	15%
Potassium Bicarbonate	15.00%
Solubiliser	1.00%
Preservative	q.s.
Fragrance	q.s.
Thickener	q.s.
Colour	q.s.

The present invention will now be described further by way of example only and with reference to the following drawings, in which:-

Fig. 1 is a diagrammatic side view of one type of a package suitable for use with the cleaning composition described herein;

5 **Fig. 2** is a diagrammatic side view of a second type of package suitable for use with the cleaning composition described herein;

Fig. 3 is a diagrammatic side view of a third type of package suitable for use with the cleaning composition described herein.

In each example the components were charged into separate compartments
10 12, 14, within a flexible container 10 illustrated in Fig. 1. Each compartment has an outlet leading to a common nozzle 16 which can be closed by a cap not shown. When the container was compressed the contents of both compartments were dispensed through the nozzle. A reaction between the acid and the bicarbonate immediately occurred releasing carbon dioxide gas which in turn created neutral,
15 dense, creamy foam.

The invention is not restricted to the specific embodiments just described, nor is it restricted to facial cleaners or shower gels. Compositions according to the invention may be used, for example, for other cleaning uses including shaving creams, fabric cleaners and hard surface cleaners.

20 Other types of package can be used with the composition of the invention. For example as shown in Fig. 2 a container 20 having two compartments 22, 24 has a pump action spray 26 mounted on the top thereof with dip tubes 28, 30 extending into the compartments of the container. This kind of package is known

for use in connection with a concentrated substance in one compartment and a diluted in the other whereby the mixture that is dispensed is diluted concentrate.

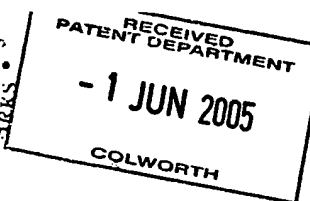
Another type of package that can be used with the composition of the invention is shown in Fig. 3 and comprises a container 32 having two
5 compartments 34, 36. A cap 38 reciprocally movable is indicated by arrows 40 which action pumps the contents of the compartments into outlets 42, 44. The compartment outlets merge together to form a common outlet 46. This type of package is also known but for keeping two ingredients of a cosmetic separate until they are dispensed for use in order to prevent one ingredient which is an emulsion
10 being broken by the other ingredient.

The examples and packages described herein are by way of illustration only.

Claims

1. A cleaning composition provided in a package, wherein the cleaning composition comprises at least one surfactant, a first aqueous acidic component and a second aqueous alkaline component, the first and second components being
5 located in separate compartments within the package prior to being dispensed therefrom, whereby when the first and second components are combined together before or after dispensing, carbon dioxide gas is generated which acts on said surfactant to create a lather, characterised in that the first acidic component further comprises a buffer such that the pH of the first component is in the range from 2
10 to 6.5.
2. A cleaning composition according to claim 1, wherein the pH of the first component is buffered in the range from 3 to 6.
3. A cleaning composition according to claim 2, wherein the pH of the first component is buffered in the range from 4 to 5.
- 15 4. A cleaning composition according to any preceding claim, wherein the first component comprises an alpha hydroxy acid in combination with a salt thereof.
5. A cleaning composition according to claim 4, wherein the alpha hydroxy acid is citric acid and the salt is sodium citrate.
- 20 6. A cleaning composition according to any preceding claim, wherein the acid constitutes from 1% to 20% by weight of the first component.
7. A cleaning composition according to any preceding claim, wherein the second component comprises a carbonate or bicarbonate.

8. A cleaning composition according to claim 7 wherein the bicarbonate is potassium bicarbonate.
9. A cleaning composition according to any preceding claim, wherein the carbonate or bicarbonate constitutes from 1% to 25% by weight of the second
5 component.
10. A cleaning composition according to any preceding claim, the surfactant comprises any of the following either alone or in combination non-ionic, amphoteric, anionic and cationic surfactants.
11. A cleaning composition according to claim 10, wherein the non-ionic
10 surfactant comprises any of the following either alone or in combination alkyl polyglucoside, fatty alcohol ethoxylates, fatty acid alkanolamides and amine oxides and mixtures thereof.
12. A cleaning composition according to claim 10, wherein suitable amphoteric surfactants include cocoamidopropyl betaine, amphotoacetates and
15 amphopriopionates.
13. A cleaning composition according to any preceding claim, wherein the composition comprises any of the following additional ingredients either alone or in combination:- colourants, preservatives, antibacterial agents, skin conditioning agents, thickeners, and fragrance.
- 20 14. A cleaning composition as hereinbefore described with reference to any of examples 1 to 5.



INVESTOR IN PEOPLE

Application No: GB 0305953.2
Claims searched: 1-14

Examiner: Michael Conlon
Date of search: 4 July 2003

Patents Act 1977 : Search Report under Section 17

Documents considered to be relevant:

Category	Relevant to claims	Identity of document and passage or figure of particular relevance
X	1	US6583103 (Johnson) paragraph 0037
X	1	EP1133983 A1 (Color Access) paragraphs 007, 0011, 0028
X	1	WO2001/000765 A1 (Depoot) Example 17
X	1-14	US6177092 (Color Access) Example 1 and column 6 line 64
X	1	US5804546 (Cussons) the Example
X	1	EP0745665 A2 (Cussons) the Example
X	1	FR2738148 (Codif) whole document

Categories:

X Document indicating lack of novelty or inventive step	A Document indicating technological background and/or state of the art.
Y Document indicating lack of inventive step if combined with one or more other documents of same category.	P Document published on or after the declared priority date but before the filing date of this invention.
& Member of the same patent family	E Patent document published on or after, but with priority date earlier than, the filing date of this application.

Field of Search:

Search of GB, EP, WO & US patent documents classified in the following areas of the UKC^V:

C5D

Worldwide search of patent documents classified in the following areas of the IPC⁷:

A61K C11D

The following online and other databases have been used in the preparation of this search report:

Online: WPI EPODOC JAPIO

**This Page is Inserted by IFW Indexing and Scanning
Operations and is not part of the Official Record**

BEST AVAILABLE IMAGES

Defective images within this document are accurate representations of the original documents submitted by the applicant.

Defects in the images include but are not limited to the items checked:

- ☐ BLACK BORDERS
- ☐ IMAGE CUT OFF AT TOP, BOTTOM OR SIDES
- ☒ FADED TEXT OR DRAWING
- ☐ BLURRED OR ILLEGIBLE TEXT OR DRAWING
- ☐ SKEWED/SLANTED IMAGES
- ☒ COLOR OR BLACK AND WHITE PHOTOGRAPHS
- ☐ GRAY SCALE DOCUMENTS
- ☒ LINES OR MARKS ON ORIGINAL DOCUMENT
- ☐ REFERENCE(S) OR EXHIBIT(S) SUBMITTED ARE POOR QUALITY
- ☐ OTHER: _____

IMAGES ARE BEST AVAILABLE COPY.

As rescanning these documents will not correct the image problems checked, please do not report these problems to the IFW Image Problem Mailbox.